

## THE REGULATORY HORIZON

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First of all, I want to thank NASA and the Military Airlift Command for inviting the FAA to participate. When I talked with Clay Foushee several days ago about the opportunity to be here, I mentioned to him at that time that we at Flight Standards feel that regardless of the history between the FAA and the airline community, and whatever problems may have or may not have existed before, we are all in this for the long-haul and we want to make the best of it on both sides.

Clay had asked me to keep the remarks as short as possible this morning to allow the opportunity for some questions and answers to take place. I explained to him that what I wanted to talk about very briefly were two areas. The first is cockpit resource management training as itself and what is on the regulatory horizon for it. That is very simple and straightforward in that we are neutral about cockpit resource management training at this point. I say that not being intimidated by what Lawson White said yesterday about good programs being screwed up by regulators. We don't know enough about the cockpit resource management training programs yet to be in a position to say anything about any regulatory activity.

However, I think it would be unfair if we were not to mention the fact that if a positive, good, safer air crew can be generated out of any training program, whether it is cockpit resource management or any other kind of training program, the question very probably could be asked of the FAA, which is the regulatory body: Why don't you require everyone to do that kind of training?

Right now, we don't have an answer to that. We don't know whether the question is going to be asked. And there are lots of questions, hopefully that the workshops this afternoon and tomorrow morning will be able to pull together for us.

The other thing that I wanted to touch on briefly is the cockpit resource management program as it is influenced by, and is part of, the current regulatory process for training and checking. It has been alluded to and was mentioned several times yesterday in connection with an exemption process that is currently underway with United Airlines. It allows United the option of performing their recurrent training on an annual basis for their flight crew members, which, as most of you know, is different from what the regulations require.

I don't know the specifics of the background of the exemption. My tenure in Washington has been rather brief so far. I understand, however, that that exemption was entered into some three-and-a-half or four years ago. And for those of you who do not know of the exemption process, an exemption is normally granted to a particular

request or for a particular set of reasons, normally for a finite period of time. Then this exemption can and often is extended, and at that time, with that extension, there may be additional requirements or modifications of the parameters of that exemption.

The current extension for the United exemption, I believe, runs out toward the end of this year. I believe it is the end of December. I am not sure now whether this is the second or the third iteration of the exemption extension process.

However, one of the problems that we--when I say "we," I mean the airline industry, particularly FAA Flight Standards and United Airlines--ran into was the kind of material that this kind of a program was going to provide to us. Basically, the reporting of data. The FAA was very interested in the program that was presented by United because, for the first time in a very long time, there was an opportunity to look at the training and how it was done, why it was done, where it was done, the tools that would be used to measure performance, et cetera.

The FAA hoped to gain some information about training and its processes with a view toward possible regulatory action in the future. The information that was supplied through the initial phases of the conduct of training at United under the provisions of this exemption really didn't give the kind of information that we had thought that it might. And without going into all of the iterations of the exemption extensions, we decided earlier in this year, and I believe it was in February, to outline some of the more specific questions that we needed answers to from United, that would allow us to extend the exemption should they wish to do so--fully believing they intended to extend the exemption.

We structured a letter and a series of questions to United that were rather detailed in nature. We also, in the body of the letter, I think, went into some detail to explain that we were not negative about what it was United was producing, or what it was trying to produce; but, quite the contrary, we were rather positive. We had a very strong feeling that what was being attempted at United was what we wanted to see or would provide information that would be very useful to us.

So, we were not trying to be negative about the program, or innovative thinking, or anything of the like. What has resulted from that process has been a very determined effort on the part of United to sit down with us on a periodic basis and discuss the answers to some of these questions.

There were two other petitioners who are asking for essentially the same kind of exemption authorization. And in fairness, we sent letters to both of those operators outlining essentially the same group of ten questions. We understand that there are other people also in the wings waiting to approach the FAA with the same kind of exemption request.

We don't know how well these kinds of things are going to be integrated into the existing regulatory process. That is the kind of information that we were asking from United and we would ask of anyone who would propose to participate in this kind of an exemption process.

Beyond that, I really can't say much about the regulatory horizon or the regulatory future of cockpit resource management. We don't know enough. Mr. White's review of the survey that he conducted of people who were participating in the program or in a similar program, I think, are indicative of that kind of information. There are very dispersed kinds of information available. The tools for measuring success in cockpit resource management have not been developed, or not developed extensively at any rate, so we are anxiously awaiting what the future is going to bring.

In Clay's (Foushee) opening remarks yesterday in the working groups, he posed the question whether or not the regulations might weigh heavily and be an obstacle in the way of developing cockpit resource management training. We certainly don't want to be a hindrance to any kind of development in a training area that would produce a better and therefore a safer crew.

I don't know that I can go into any more detail than that. If anyone does have any questions about what it is that we have talked about or the reasons we say what we say, I'd be happy to attempt to answer those questions.

## DISCUSSION

CAPT. BEACH: I am curious. Off the top of your head, given the climate you are describing just now, does it seem to you that the FAA will be more responsive to individual entities who want to try something different, something that is now outside the current regulation?

MR. COOK: You don't ask easy ones, do you, Bert. I would like to think that the environment is continually moving forward. The dynamics of the industry are such that we are not going to be able to move very far, very quickly, with blinders on. I think that any kind of an innovative concept is something that should be evaluated as completely as its worth would indicate.

I guess the answer to your question in a word is "yes." I think the climate is more receptive now. However, any kind of thing that we get involved in in that area is definitely going to have to have some kind of supportive documentation that would allow us to do the kinds of things that we would like to do. When I say "we," I mean the industry as a whole. A warm "fuzzy," or a comment that the pilots like it, or that the crewmembers like it is not sufficient information to base any kind of regulatory change or any kind of authorization to deviate from the regulations. But, yes, I believe the climate is more receptive to innovative concepts--out of necessity.

CAPT. CAVANAGH: Are you able to share with us the questions that are being asked of United and the other two applicants?

MR. COOK: Yes, I could touch on them in broad scope. The people that I have talked with at United and with one of the other operators have indicated that some of the information and some of the areas that we have discussed they may consider to be proprietary. That may be overcautious on my part, I don't know--but I would rather not

go into too much detail out of sensitivity to those carriers for any kind of proprietary information that they may feel is theirs and that they could do something with on their own.

Briefly, the exemption that was issued was for the authority to conduct what has been known, now I guess generically, as single-visit training whereby they bring a crew in one time a year to do training rather than bringing each person in once a year for ground school, bringing the first officer or the second officer, as may be appropriate, in once a year for a proficiency check or a simulator course of training or a LOFT and then bringing the captain in twice a year, once for a proficiency check, and the opposite time for either a proficiency check, LOFT, or a simulator course of training.

The alternative in this single-visit option is to bring everybody in once a year. The question that we wanted to know was: Is there any program set up for measuring proficiency of a captain between months 7 and 12? And if there is not a measurement for those months, what reason can there be for not doing that? We do it now. Why should we not require that kind of measurement to be accomplished in months 7 through 12. And there may be a very valid answer for that.

What kind of a program exists or would be invented to identify line-flight incidents that would lead into some kind of trend which would lead into a training program modification? And what kind of information would be used to validate these trends, and the success or the lack of success of the training program?

What kind of a program would there be for the analysis of failed maneuvers or failed checks? And what kind of corrective actions would be taken and what kind of measuring devices would be used to improve the quality of the training program based on this analysis?

Why would the petitioner, or does the petitioner, feel that the best use of training time can be accomplished in the single-visit training versus the training that the regulations currently require?

There has been in the exemption process terms known as fixed and variable maneuvers. We were asking what would be the criteria for these fixed and variable maneuvers? What kind of criteria would be used to adjust the maneuvers from the fixed category to the variable category? What amount of time would be allocated? Would that have an effect on the overall program? And would this indicate a positive or a negative influence on the overall proficiency level of the crewmember concerned?

Another question area is basically: Is the crew concept for training and checking better than the existing regulatory requirements for crew training or individual training and checking? What kind of unique features of advanced simulation are incorporated into the training programs as a result of this program? Does the cockpit resource management program affect the proficiency level of the crew members and the overall safety of the operation? Is the exemption, or is this authorization, crucial to the conduct of cockpit resource management training and vice versa? And is the use of advanced simulation and advanced simulator training programs crucial to cockpit resource management?

In each of these questions or question areas--and there were more specific detailed questions in each of them--we were asking: What kind of data are you going to gather? How are you going to gather that data? How is it going to be validated to support the direction that you want to go with this training program?

As much as the answer to the question is important, the validity of the answer is equally important. Those are basically the areas of the questions that we are asking.

CAPT. R. BUTLER: As you know, we are one of the respondents to this questionnaire and we have already answered. I believe we have sent our answers in to Washington.

One question we have, and this is in regard to validation, and I think Dr. Helmreich briefly touched on it the other day, and that is the area of confidentiality. This is where we feel we have some major concerns because we are dealing with a pilot and a flight engineer work force--in fact two unions that are looking at confidentiality as one of the major roadblocks in terms of putting a validation program into place.

And I guess my question is: Is the FAA willing to address that and allow an independent agency such as NASA or a university do the validating work? Since we have included NASA-sponsored research at the University of Texas as one of the cornerstones in our original request for exemption, it's part of the request, so that makes it extremely important to us.

MR. COOK: In all fairness, I have not read the exemption request by Pan American. I do know that a letter with essentially the same body of questions was sent to the Pan American folks. I am aware that they have responded, and I think there is another letter about to go back.

As far as the willingness of the FAA to have other agencies participate in the validation process, definitely "yes." We are interested in providing an avenue that would result in the better-trained crewmember, and whatever that method can be is what we are interested in accomplishing.

There again, the validation is what is as critical as the answers to these questions are. Like I said earlier, the warm fuzzy kind of comments that you get from crewmembers, where they say, "Yes, we like it," and "we are doing better," and "it's well-accepted" are nice, but that is not sufficient to change the regulatory process for flight crew from individual training and checking.

MR. KREY: You mentioned fixed and variable maneuvers. Can you tell us what those are or what the concept is?

MR. COOK: I could only make a stab at that. That is one of the question we wanted to have some specific answers to from the people who were requesting the exemption. And if I garbage this up, folks, I hope you'll help me out here with the correct definition.

There is an attempt to define some of the maneuvers and procedures as fixed that are maneuvers that would not normally be seen in typical line flight operations--that are of a critical nature as far as handling an aircraft in a certain set of circumstances--

"engines out" and those sorts of things.

There are other variable maneuvers that may be appropriate for either an aircraft type or crewmember position or a location that might be appropriate.

These kinds of things are very interesting to the Flight Standards people in Washington, and what we were asking the petitioners for was a more accurate definition of the fixed and variable maneuvers, what the criteria would be for classifying a particular maneuver, either fixed or variable, how it would be changed, what the criteria would be for adding maneuvers or dropping maneuvers, what they would do with the time-frame involved from the typical proficiency check or simulator course that currently exists.

I don't know whether that completely answers your question, but I think that is the best I can do with it.

CAPT. R. BUTLER: In going back to a statement you had made earlier about the FAA not being negative, I do have to read a comment that we had from the original attitude survey that was sent to Dr. Helmreich on crewmember attitudes. I'm not trying to be negative, but I would just like to give you the airman's perception. This is a first officer, and it says: "If cockpit resource management was presented the same as the FAA-mandated security training, it would be a complete and total waste of time."

And I have to pass that along to you because I think it does represent some of the fears of this body. I am not trying to take a negative position, but I am trying to reinforce what was said about the concept of regulation. I think we all have to be very careful because it is a new concept, and I think we jumped into security training, which has affected all of us in the airline business both economically, time-wise, and logistically.

So, I think any regulation in the future should be looked at very carefully and with a very close eye that we don't create this type of response to it from the airmen that do get the training.

CAPT. J. E. CARROLL: I applaud the fact, as Roy (Butler) has indicated, that there is no intent right now to jump into a regulatory mode on this because no one knows enough about it as yet.

I do have a question, however. Before that, I would like to give a little explanation from the standpoint of United and the exemption process with the FAA. When Walt Luffsey was there--at the time when we requested the exemption--there were four requirements as basic requirements before you could even entertain the consideration of an exemption.

One: You had to have the crew concept approach to training, which Ed has covered.

Two: You had to be using LOFT in an acceptable fashion within your training mode.

Three: You had to have advanced simulation equipment to use.

Four: You had to have a human factors ingredient within the training to even be in the position to request the exemption.

So, that was the rather generic basis of it. I didn't want the impression to be that it was strictly cockpit resource management which was the thing that was the key, if you will, perhaps at the time, because we had the other three. But it wasn't the only thing we had to have.

My question--as I say, I am glad to hear that it's not regulation as yet or even being considered--but there was a letter from the NTSB in April of last year that was sent to the FAA with two safety recommendations, one on wind shear and one on resource management. And as I remember the recommendation, the resource management recommendation was that you should research what was out there and available, and then consider making it a regulatory requirement.

From the standpoint of research, are you taking any steps, do you envision any approach that you're going to have to establish that research to obviate the concern that Roy and the rest of us have about jumping in too quickly?

MR. COOK: As far as any specific kind of research that the FAA is engaged in, I am not aware of anything specific other than the eagerness of the Flight Standards Division to stay abreast of what the current community of thinking is in cockpit resource management.

We are making some anticipated changes in not only the structure of flight standards, but also some of the personnel that are involved in the Washington process. The specifics for the personnel part of that--we are currently looking at the option of acquiring the services of a dedicated educational professional, not FAA, to assist us in looking at training programs and the requirements for those programs and how they can best be instituted.

The possible structural change is a project that is currently ongoing in Flight Standards called Project SAFE. It's an acronym and I am not even sure now what S-A-F-E stands for.

It was a direct outgrowth of Secretary Dole's (Department of Transportation) direction of the implementation of the national air transport inspection that was conducted some time back. This project SAFE has been billed as the blueprint for restructuring Flight Standards. When I say "restructuring," I am not sure whether that is going to mean, as I said earlier today, a change on the door or a new building. And it may mean significant changes in some areas and not very significant changes in other areas. But those are two of the things we are looking at as far as trying to stay as abreast as we can of what the current situation--the philosophies, policies, and the environment is in all aspects--not only in cockpit resource management.

CAPT. CAVANAGH: Going back a little bit in history, before Ed Carroll and I were retired, this exemption process was first started about that time.

I can talk a little bit about the history of the variable and fixed maneuvers. They are independent of the CRM aspects. They are also independent of LOFT and the once-a-year visit.

As I understand and recall it, the FAA was interested in some experimentation and research in why we did the maneuvers that were done traditionally and regulatory-wise on proficiency checks that are covered in Part 121 of Appendix F that had been the same for a good many years. And they introduced the subject to United of incorporating this as part of the exemption. It was received favorably. I can appreciate now why they would want to have additional information on it. But, at any rate it was an attempt to identify better some of the maneuvers that might be more germane to operations today than those that had been used in the past.

MR. COOK: Thank you for the clarification.

PROF. HACKMAN: This is a friendly question. Sometimes the FAA is in a position of having to make a determination or move towards some policy on the basis of less than totally wonderful evidence--relying instead on inferences from fuzzier data or on expert judgment and so forth. The "Age 60" rule comes to mind as an instance when it is not really possible to tie things down, and you have to come to some kind of an arbitrary determination.

Having had a chance to look over the questions here regarding exemptions, it seems as if you're looking for some pretty well nailed-down evidence as regards making these exemptions. I was genuinely interested in what the circumstances are under which you'd be willing to go with inferences and expert judgments and things like that in making a determination versus when you really want to have it validated and all the "i's" dotted and the "t's" crossed.

MR. COOK: I understand. One of the things that we would like to be able to have, naturally, is just reams and reams of definitive, hard, cold, factual data to support anything that we would say. But we are not naive enough to believe that we are going to get anything close to that. And instead, we are anticipating that there are going to be areas where the best documentary evidence would be very highly subjective. And if we can have enough information that demonstrates that objective, hard, cold facts are just not possible--and the reasons for that--and enough documentation, if that is the correct terminology, for what high-quality subjective data is available, then that is our best evidence, and we will use that to make the determinations.

MAJ. AUFDERHEIDE: Thank you, Ed. With those issues in mind, we are going to break into working groups. Clay Foushee would like to talk about the instructions for the working groups.

EDITORS' NOTE: Subsequent to the workshop, a number of individuals have inquired about the possibility of obtaining a copy of the letter from the FAA to several air carriers requesting specific data prior to approval of an exemption allowing annual recurrent training for all crewmembers in place of biannual recurrent training for captains. This exemption has been utilized by at least one major carrier to expand their CRM training. Mr. Cook supplied the text of the letter which follows:



The Federal Aviation Administration (FAA) recently took a first step in a cooperative venture with the airline industry to explore new thoughts and ideas in the area of flight crewmember training. This first-step effort was entered into as a grant of exemption from portions of the FAR regarding the accomplishment of recurrent ground and flight training requirements as well as proficiency and line checks. It was conceived as an operational test of new training concepts which would maximize the benefits of advanced simulation and deal with the increasing complexity of cockpit human factors. This type of program has recently been referred to as "single visit" training.

A great part of the motivation of the FAA in allowing sufficient flexibility to accomplish this type of program was an opportunity to gather sufficient data on flight crewmember training concepts directly from the airline community to provide a sound basis for approaching future rulemaking, while at the same time providing data to support the contention that such a program was, indeed, a better way to train and check.

Because of the strong belief in the potentials of new and innovative concepts in the training and evaluation functions within the airline industry, the posture of the FAA regarding the acceptability of these new concepts remains keenly positive. It is for this reason that the FAA has encouraged this type of thinking and provided the flexibility to initiate trial programs in this area and fully intends to continue doing so when appropriate. However, any authorization to deviate or any grant of exemption from the prescribed FAR must have the assurance, as a prerequisite when possible, but at least collaterally, when necessary, that the proposed program will provide the intended results. This assurance must necessarily include specific empirical and/or other data that will prove the following:

- 1) the viability and efficiency of the program as meeting or, hopefully, exceeding the existing standards; and
- 2) provide at least a commensurate level of safety in the program's accomplishment.

This information will be used to evaluate any petition for exemption from the FAR in this area. Failure to initially provide this necessary and verifiable assurance will result in a denial of such a program, and failure to continue to provide this information, either as collateral requirements or as a condition of the exemption, will result in a rescission of approval for such a program.

To help prevent any misunderstandings, the FAA has generated nine question blocks, the answers to which, or a description of the methods that will be used to obtain the answers, will be used to evaluate the viability and efficacy of any proposed program of this nature.

#### QUESTION BLOCKS

*Question 1:* Will there be a method to measure the overall and specific proficiency in normal, abnormal, and emergency procedures and maneuvers of pilots-in-command in months 7 through 12 after completion of a proficiency check? If not, what data will be used to support the absence of such a measurement?

*Question 2:* Will there be a program to identify and analyze line flight incidents? If not, what is the reason for not having such a program? If so, how will these incidents be translated into trends and will these trends be incorporated into the training program? How will this success be measured?

*Question 3:* Will there be a program to analyze failed maneuvers or failed checks? If

not, what is the reason for not having such a program? If so, what action will be taken on the basis of the results of this analysis? How will you measure the success or lack of success of incorporating these results into the training program?

*Question 4:* What analysis was made to determine that the best use of training would result in the proposed application, as opposed to that as required in the FAR? What data has been collected that supports this determination?

*Question 5:* Will you propose defining maneuvers as "variable" vs. "fixed"? How will this maneuver designation and accomplishment affect the training program? How has this conclusion been reached?

*Question 6:* Do you propose that training and checking under a crew concept will be more effective than individual training and checking? What data have you collected to support this position? Should this program of training and checking be implemented, what data will be collected to verify its efficacy? How will these statistics be gathered?

*Question 7:* Describe any/all unique features of advanced simulation that will be incorporated into your training program that are not incorporated in the program currently. How will this modification affect your training program? How will the effect of this modification be measured?

*Question 8:* Will you include a training program for Command, Leadership, and Resource Management? If not, please explain why. If so, do you expect this program to affect the proficiency level of the individual crew member or of the crew as a whole? What data do you expect to obtain to validate this position?

*Question 9:* Is the Advanced Simulation Program and/or use of advanced simulators crucial to your proposal? What data is used to reach this determination and how has it been validated?